

WHAT IS CLAIMED IS:

1. A human phantom apparatus comprising:  
a body section;  
a head section connected with said body section;  
5 at least one shoulder section connected with said body section;  
and  
an arm section including a hand section, said arm section  
connected with said shoulder section,  
wherein each of the body section, the head section, the at least  
10 one shoulder section, and the arm section is filled with a human body  
equivalent material, and  
wherein the human phantom apparatus has an attitude of  
holding a radio communication apparatus by the hand section of said  
arm section, so that the human phantom apparatus looks at a display  
15 unit of said radio communication apparatus in front of said body  
section.
2. The human phantom apparatus as claimed in claim 1,  
wherein said head section is arranged to be inclined from a  
vertical direction of said human phantom apparatus.
- 20 3. The human phantom apparatus as claimed in claim 1,  
further comprising a first rotational connecting device for rotatably  
connecting said head section on said body section at a depression angle  
direction of said human phantom apparatus.
4. The human phantom apparatus as claimed in claim 1,  
25 further comprising a second rotational connecting device for rotatably  
connecting said hand section around said arm section at the depression

angle direction of said human phantom apparatus so as to change an inclined angle of said radio communication apparatus with respect to a horizontal direction.

5           5. The human phantom apparatus as claimed in claim 1,  
further comprising a first slidable connecting device for slidably  
connecting said shoulder section with said arm section so as to change  
an interval between said body section and said hand section.

10           6. The human phantom apparatus as claimed in claim 1,  
further comprising a second slidable connecting device for slidably  
connecting said shoulder section with said body section substantially in  
a vertical direction of the human phantom apparatus.

            7. The human phantom apparatus as claimed in claim 1,  
wherein said human phantom apparatus is employed to measure  
a characteristic of an antenna of said radio communication apparatus.

15           8. A finger phantom apparatus comprising:  
a hollow fingertip section made of an elastic material; and  
a hollow finger root section made of a dielectric material,  
wherein said fingertip section and said finger root section are  
filled with a human body equivalent material, and are sealed.

20           9. A finger phantom apparatus comprising:  
a hollow fingertip section made of an elastic material, said finger  
section being filled with a human body equivalent material; and  
a finger root section made of a solid phantom.

25           10. The finger phantom apparatus as claimed in claim 8,  
wherein said finger phantom apparatus is employed to measure a  
characteristic of an antenna of a radio communication apparatus.

11. An antenna characteristic measurement apparatus for measuring a characteristic of an antenna of a radio communication apparatus using a human phantom apparatus,

wherein said human phantom apparatus comprises:

5 a body section;

a head section connected with said body section;

at least one shoulder section connected with said body section;

and

10 an arm section including a hand section, said arm section connected with said shoulder section,

wherein each of the body section, the head section, the at least one shoulder section, and the arm section is filled with a human body equivalent material,

15 wherein the human phantom apparatus has an attitude of holding a radio communication apparatus by the hand section of said arm section, so that the human phantom apparatus looks at a display unit of said radio communication apparatus in front of said body section, and

20 wherein said antenna characteristic measurement apparatus comprises a control device for measuring the characteristic of the antenna of said radio communication apparatus, by changing at least one parameter selected from (a) an interval between said body section and said radio communication apparatus, (b) an inclined angle of said radio communication apparatus with respect to a horizontal direction, and (c) a height of said radio communication apparatus.

25 12. The antenna characteristic measurement apparatus as

claimed in claim 11,

wherein said human phantom apparatus comprises a finger phantom apparatus, and

wherein said finger phantom apparatus comprises:

5 a hollow fingertip section made of an elastic material; and  
a hollow finger root section made of a dielectric material,  
wherein said fingertip section and said finger root section are filled with a human body equivalent material, and are sealed.

10 13. The antenna characteristic measurement apparatus as claimed in claim 12,

wherein the characteristic of the antenna of said radio communication apparatus are measured in such a state that said fingertip section is brought into contact with an input device of said radio communication apparatus.

15 14. An antenna apparatus for use in a radio communication apparatus, said antenna apparatus comprising at least two antennas,  
wherein said two antennas are arranged in said radio communication apparatus, so that an absolute value  $d_0$  of a horizontal interval between said two antennas satisfies the following Equation:

20 
$$d_0 = \lambda/4 + (n\lambda)/2,$$

where  $\lambda$  is a wavelength of a radio wave to be used, and  $n$  is an integer equal to or larger than zero.

15 15. An antenna apparatus for use in a radio communication apparatus, said antenna apparatus comprising at least two antennas,

25 wherein said two antennas are arranged in said radio communication apparatus, so that an absolute value  $d_0$  of a horizontal

interval between said two antennas, in such a state that said radio communication apparatus is inclined at a predetermined inclined angle with respect to a horizontal direction, satisfies the following Equation:

$$d_0 = \lambda/4 + (n\lambda)/2,$$

5           where  $\lambda$  is a wavelength of a radio wave to be used, and  $n$  is an integer equal to or larger than zero.

16. A radio communication apparatus comprising an antenna apparatus,

          wherein said antenna apparatus comprises at least two antennas,  
10       and

          wherein said two antennas are arranged in said radio communication apparatus, so that an absolute value  $d_0$  of a horizontal interval between said two antennas satisfies the following Equation:

$$d_0 = \lambda/4 + (n\lambda)/2,$$

15           where  $\lambda$  is a wavelength of a radio wave to be used, and  $n$  is an integer equal to or larger than zero.

17. A radio communication apparatus comprising an antenna apparatus,

          wherein said antenna apparatus comprises at least two antennas,  
20       and

          wherein said two antennas are arranged in said radio communication apparatus, so that an absolute value  $d_0$  of a horizontal interval between said two antennas, in such a state that said radio communication apparatus is inclined at a predetermined inclined angle  
25       with respect to a horizontal direction, satisfies the following Equation:

$$d_0 = \lambda/4 + (n\lambda)/2,$$

where  $\lambda$  is a wavelength of a radio wave to be used, and  $n$  is an integer equal to or larger than zero.

18. An antenna apparatus for use in a radio communication apparatus, said antenna apparatus comprising at least two antennas  
5 including a first antenna and a second antenna,

wherein said first and second antennas are arranged in said radio communication apparatus, so that an absolute value  $d_0$  of a difference between (a) a horizontal interval between a body section of a human phantom apparatus and said first antenna and (b) a horizontal interval  
10 between said body section of said human phantom apparatus and said second antenna, in such a state that said radio communication apparatus is held by a hand section of said human phantom apparatus, satisfies the following Equation:

$$d_0 = \lambda/4 + (n\lambda)/2,$$

15 where  $\lambda$  is a wavelength of a radio wave to be used, and  $n$  is an integer equal to or larger than zero.

19. An antenna apparatus for use in a radio communication apparatus, said antenna apparatus comprising at least two antennas including a first antenna and a second antenna,

20 wherein said first and second antennas are arranged in said radio communication apparatus, so that an absolute value  $d_0$  of a difference between (a) a horizontal interval between a body section of a human phantom apparatus and said first antenna and (b) a horizontal interval between the body section of said human phantom apparatus and said  
25 second antenna, in such a state that said radio communication apparatus is held so as to be inclined at a predetermined inclined angle

with respect to a horizontal direction by a hand section of said human phantom apparatus, satisfies the following Equation:

$$d0 = \lambda/4 + (n\lambda)/2,$$

5 where  $\lambda$  is a wavelength of a radio wave to be used, and  $n$  is an integer equal to or larger than zero.

20. A radio communication apparatus comprising the antenna apparatus,

wherein said antenna apparatus comprises at least two antennas including a first antenna and a second antenna, and

10 wherein said first and second antennas are arranged in said radio communication apparatus, so that an absolute value  $d0$  of a difference between (a) a horizontal interval between a body section of a human phantom apparatus and said first antenna and (b) a horizontal interval between the body section of said human phantom apparatus and said  
15 second antenna, in such a state that said radio communication apparatus is held by a hand section of said human phantom apparatus, satisfies the following Equation:

$$d0 = \lambda/4 + (n\lambda)/2,$$

20 where  $\lambda$  is a wavelength of a radio wave to be used, and  $n$  is an integer equal to or larger than zero.

21. A radio communication apparatus comprising the antenna apparatus,

wherein said antenna apparatus comprises at least two antennas including a first antenna and a second antenna, and

25 wherein said first and second antennas are arranged in said radio communication apparatus, so that an absolute value  $d0$  of a difference

between (a) a horizontal interval between a body section of a human phantom apparatus and said first antenna and (b) a horizontal interval between the body section of said human phantom apparatus and said second antenna, in such a state that said radio communication

5 apparatus is held so as to be inclined at a predetermined inclined angle with respect to a horizontal direction by a hand section of said human phantom apparatus, satisfies the following Equation:

$$d_0 = \lambda/4 + (n\lambda)/2,$$

where  $\lambda$  is a wavelength of a radio wave to be used, and  $n$  is an  
10 integer equal to or larger than zero.